

Step 1: Researching Pedigree Terminology

Use the links to answer the following questions:

<http://www.saburchill.com/IBbiology/chapters03/006.html>

1. What kinds of information are found on a pedigree chart?
2. Draw the symbol that represents a male.
3. Draw the symbol that represents a female.
4. What does a line in between two individuals represent?
5. How is an individual that is affected by the trait shown?
6. Describe how a pedigree chart differentiates between parents and offspring.
7. What is a generation? How many generations are depicted in the pedigree at the bottom of the page?
8. Look at the top pedigree. How many children does that couple have? What are their sexes of the children?
9. Look at the bottom pedigree. How many children does the original couple have? Are any of these children affected individuals? Explain.
10. In the bottom pedigree, in the fourth generation, list the sex of each child from oldest to youngest.

Step 2 - Now that you have a basic understanding of pedigree charts and their symbols, you will practice drawing your own pedigree of the following family.

Part A:

1. Draw a pedigree chart for the following family. Emily and Richard are grandparents. They have 3 children, Lorelei, Kasey, and Linda. Lorelei is married to Christopher and they have a daughter named Rory. Kasey is married to Luke and they have 3 children, Hanna, Logan, and John. Linda is divorced and has 2 daughters, Melissa and Holly.
2. Be sure that you use the appropriate symbols, designate the different generations properly, and include the correct name and gender.

Part B: Go to the following website to answer these questions:

<http://www.ygyh.org/hemo/whatisit.htm>

In order to find information on this website, navigate through the site by either clicking on the different pictures, descriptions, or questions.

1. How does a boy get hemophilia?
2. How does a girl become a carrier?
3. If a woman is a carrier and the male does not have hemophilia, draw a Punnett Square and indicate the possible outcome.

Now use the information that you learned about Hemophilia to complete your pedigree chart from Part A of this lesson. Indicate that Richard, Linda, John and Luke have hemophilia by shading in the symbols that represent them in the Pedigree Chart. Explain in a sentence or two how hemophilia is inherited. Describe which parent gave John the defective allele for hemophilia and explain how you know. Indicate how hemophilia is passed from generation to generation. Include the genotypes and phenotypes of his parents, Kasey and Luke, as well as his grandparents, Emily and Richard

Go to the University of Arizona Human Biology [Human Karyotype](#) web page, complete the activity, and answer the following questions.

Patient A

- A 1. What notation would you use to characterize Patient A's karyotype?
- A 2. What diagnosis would you give patient A?

Patient B

- B 1. What notation would you use to characterize Patient B's karyotype?
- B 2. What diagnosis would you give patient B?

Patient C

- C 1. What notation would you use to characterize Patient C's karyotype?
- C 2. What diagnosis would you give patient C?